

## Management of overweight and obese adults

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New treatment strategies have failed to control the global increase in obesity. Here two scientists discuss common barriers that need to be overcome by both healthcare professionals and patients if weight reduction is to be achieved and maintained

The 1980s and '90s witnessed alarming increases in obesity across the globe.<sup>1</sup> This epidemic has not been slowed by new treatment strategies, leading some health professionals to doubt if they can help their patients. A recent audit documented wide variation in the management of overweight and obese patients in general practices in England and uncertainty about which treatments were most effective.<sup>2</sup> Healthcare providers may fail to address obesity for many reasons, including cynicism about the efficacy of treatments, lack of time, perceived non-compliance of patients, and lack of training in counselling and motivating patients to change their behaviour.<sup>3-4</sup> Although the control of obesity ultimately requires population based strategies, doctors can and should provide effective individual care. We review evidence based recommendations for managing overweight and obese adults.

### Methods

We searched Medline (1966-March 2002) using the terms "obesity *or* overweight" and "practice guideline, systematic review, *or* primary care." We also searched the Cochrane Library, the US National Guideline Clearinghouse, and the reference list of identified articles. Inclusion criteria were English language systematic reviews or evidence based guidelines on the identification, prevention, and general management of obese and overweight adults. We also included supplemental information that reflects our own research interests and personal experience in managing obesity, as well as information obtained from the internet.

### Defining overweight and obesity

Obesity is usually defined by an indirect measure of body fat, the body mass index (weight(kg)/(height(m)<sup>2</sup>). The World Health Organization defines overweight as a body mass index of 25.0-29.9 and obesity as a body mass index  $\geq 30$ .<sup>1-5,6</sup> Epidemiological studies in the United Kingdom, the United States, and several other countries indicate that the prevalence of obesity is increasing (figure).

Body mass index does not, however, adequately characterise the distribution of body fat, which is important because excess intra-abdominal fat is an independent predictor of health risk.<sup>6</sup> Guidelines

### Summary points

Obesity is an increasingly serious health problem worldwide

Body mass index, waist circumference, and comorbidities related to obesity should be monitored in patients who have a body mass index  $\geq 25$

Healthy behaviours should be encouraged in all patients

Most people can be helped to manage their weight, and healthcare providers must avoid stigmatising and blaming patients for their obesity

For motivated patients, weight loss should aim for a gradual and modest weight loss of 5-10% of initial body weight by caloric restriction, increased physical activity, and behaviour therapy

The trade-off between potential benefits and harms of pharmacotherapies must be considered

Surgical interventions are effective but should be restricted to patients who are morbidly obese

recommend measurement of waist circumference, which correlates with visceral fat and indirectly measures central adiposity.<sup>6,8</sup> An increased risk to health is present when waist circumference exceeds 94 cm (37 inches) for men and 80 cm (32 inches) for women.<sup>1</sup>

Obese patients are easily identified, but patients who are mildly or moderately overweight may be overlooked.<sup>8</sup> Although it is important to consciously adopt and implement a systematic approach to detect and monitor the "vital signs" of obesity (body mass index, weight, and waist circumference) over time,<sup>9</sup> appropriate frequency of screening has yet to be established. Examination of overweight and obese patients should include assessment of the presence and status of obesity related comorbidity (see box A on bmj.com).<sup>5,10</sup>

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### A patient's perspective

I am 55 years old, and having struggled with obesity for half my lifetime, I have finally achieved some success.

I joined the US air force at 22. Then I weighed 81 kg. During my 22 years in service I was under constant pressure to lose weight. I did this in my mid-20s and again 10 years later (after I had regained the lost weight) by following weight loss programmes and jogging. Repeated threats of expulsion from the air force for being overweight made me feel guilty and added to my underlying anxiety and depression. Even when I was below the maximum allowable weight I was told that I did not "fit the warrior image" and should lose more weight.

The air force's weight management programme was not particularly helpful. Counselling was perfunctory. The diet comprised eating no more than 1200 calories daily, and the mandatory exercise classes emphasised aerobic activities.

After I retired I had a totally relaxed attitude towards weight and exercise and it showed; I gained more than 23 kg within 6 months and stopped physical activity. Back complaints were common. My weight peaked at 150 kg. Despite my experience and good references I believe that some job offers were withheld because of my weight.

Six years ago I was diagnosed with type 2 diabetes. High blood pressure, chronic back problems, and excess weight were working against me. I was determined to do something but failed, perhaps because I did not follow a structured regimen. Two years ago microalbumin was detected in my urine. My doctor told me that this could indicate irreversible kidney damage. The realisation that being overweight could cause kidney failure was the key motivation for a change in my lifestyle. Until then I was in denial about the health risks associated with obesity.

I enrolled with the Veterans Administration health system and joined its weight management programme. I entered at 143 kg. After 20 months I lost 28 kg. Learning to count calories, keep food diaries, participate in monthly group sessions, and undertake a water aerobics and weight training programme worked. Also I had overcome my lifelong negative attitude towards exercising that had arisen from being coerced and cajoled into losing weight. On a cruise I even lost 3 kg. I thought I had won. But over the next 6 months I regained 6 kg. I resolved to start again, with the help and encouragement of a dietician. She agreed to review my daily food records by email and to provide feedback.

After 18 months of maintaining the weight loss, my blood sugar readings were mainly low. I was able to reduce my dosage of metformin hydrochloride, and HbA<sub>1c</sub> readings were within normal range. As more weight comes off, I look forward to reducing my other drugs.

I won't, however, forget my doctor's words after I proudly told him how much weight I had lost: "You can do better." He's right. I can, and will, because now I have self motivation, the support of a medical team, and a clearly defined goal.

Tom Shumaker, *San Antonio, TX*

### Should patients be treated for overweight and obesity?

Cohort studies suggest that intentional weight reduction leads to improvements in mortality, but controlled trials of interventions for weight loss with adequate duration

and power to detect differences in mortality are lacking.<sup>11 12</sup> This, combined with substantial evidence documenting the difficulty of sustaining weight loss over time, has led some to question the utility of weight loss interventions.<sup>13</sup> Nevertheless, evidence from randomised controlled trials such as the recently completed Diabetes Prevention Programme indicate that intentional weight loss and lifestyle interventions can help to prevent and control chronic illnesses such as type 2 diabetes mellitus and cardiovascular disease.<sup>14</sup> This evidence underpins recent guidelines, consensus statements, and policies adopted by several professional organisations and government agencies recommending weight reduction for obese patients and overweight patients who have obesity related comorbidities.<sup>2-5 10 15</sup>

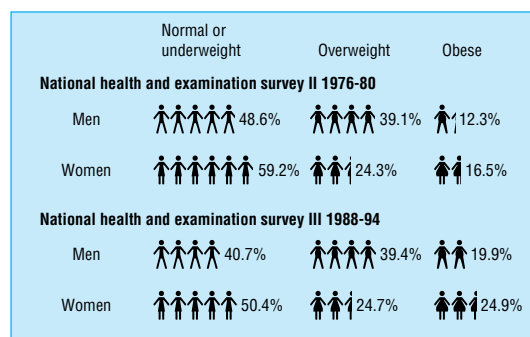
### Weight loss treatments

Restriction of calories and increased physical activity are central to most strategies for weight reduction.<sup>3 6</sup> Although most experts recommend a diet high in complex carbohydrates, restricted in total fat, and moderate in protein, popular diets that are low in carbohydrates and high in protein and fat continue to proliferate.<sup>3 16-18</sup> Controlled comparative trials of these two approaches are currently under way. Because many people succumb to the aggressive marketing of "low fat" products, which often contain large quantities of simple carbohydrates, all patients should be encouraged to reduce their consumption of refined sugar and flour and eat enough protein and fibre rich carbohydrates to meet basic nutritional needs and to help control hunger.<sup>19</sup> Regardless of the final nutritional composition of their diet, patients need to decrease their caloric intake to lose weight. Typically, reductions of 500 to 1000 kcal a day are needed to produce weight loss at the recommended levels of 1 or 2 lb (0.45 or 0.90 kg) a week.

Strong evidence shows that physical activity results in modest weight loss and increases cardiovascular fitness independent of weight loss.<sup>6</sup> Cognitive behavioural interventions, such as self monitoring, enhance weight loss.<sup>20</sup> "Lifestyle" strategies that combine a controlled energy diet, increased physical activity, and behaviour therapy provide the most successful treatment for weight loss and maintenance of that weight loss (see [bmj.com](http://bmj.com)).<sup>6</sup>

Although these basic strategies will not differ for most people, some adaptations may be needed for patients with weight related comorbidities—for example, some patients may feel unable or afraid to exercise, but even the most physically debilitated patients can safely participate in and benefit from increased physical activity with proper support (patients with ischaemic heart disease, for example, may initially require supervised exercise sessions). Patients with chronic degenerative joint disease or other chronic conditions that cause pain may benefit from non-weight bearing exercises, such as water aerobics. Patients with diabetes may need to reduce their intake of drugs to avoid symptomatic hypoglycaemia whereas patients with osteoporosis need to maintain adequate levels of calcium intake when restricting calories.

Pharmacotherapeutics can promote modest weight loss and maintenance in obese people.<sup>21</sup> Reports of infrequent, but serious, adverse events (for example, pulmonary hypertension, severe cardiac valvular



Increasing prevalence of obesity in United States (adapted from Flegal et al<sup>22</sup>)

**Box 1: Criteria for surgery to treat obesity<sup>24</sup>**

- Patients aged 18 or older with morbid obesity (body mass index  $\geq 40$  or between 35 and 40, with major weight related comorbidities)
- Patients who have already had intensive management in specialised obesity clinics
- Patients who have failed to maintain weight loss after trying appropriate non-surgical measures
- Patients with no clinical or psychological contraindications to anaesthesia or surgery
- Patients who understand and are committed to long term follow up

damage) caused earlier agents (fenfluramine, dexfenfluramine) to be taken off the market and continue to plague some agents that are still available.<sup>21</sup> Worldwide reports of deaths related to sibutramine prompted Italy to suspend sales and authorities in France, Germany, and England to review the drug.<sup>22</sup> Consumer groups are urging the United States to remove it from the market.<sup>22</sup> Although orlistat, which blocks fat absorption, has fewer safety concerns, it also has common, annoying, and socially unacceptable side effects, such as faecal incontinence and flatulence. Because of continued concerns about adverse effects and the lack of evidence about long term safety, pharmacological treatments should be used as adjuncts to strategies for changing lifestyle only for selected patients (those with a body mass index  $\geq 27$  and obesity related comorbidities) after consideration of the trade-off between potential benefits and harms.<sup>6</sup>

Surgical procedures for obesity include restrictive techniques (adjustable gastric banding, vertical banded gastroplasty) and malabsorptive techniques (Roux-en-Y gastric bypass).<sup>23</sup> Surgery is the most effective and possibly cost effective method for reducing weight in people with severe obesity. Although surgical treatments are associated with greater long term weight reduction than either behavioural or pharmacotherapeutic interventions, they are only recommended in adults with morbid obesity because of potential operative, perioperative, and long term complications.<sup>15</sup> A recent report, however, suggests that surgery for obesity is underutilised and that eligible patients are not being referred for these potentially beneficial procedures.<sup>24</sup> Patients should be referred to an experienced interdisciplinary team for evaluation (box 1).



Tony Dowd, who weighed 20 stone (127 kg), lost his job with the AA for being "too fat"

**Psychological and physiological effects of weight reduction**

Concern about possible psychological and physiological hazards of dieting and repeated weight loss and regain (weight cycling or "yo-yo dieting") led the US National Task Force on the Prevention and Treatment of Obesity to evaluate their validity.<sup>15</sup> A systematic review published in 1994 found no evidence that weight cycling has adverse effects on body composition, energy expenditure, risk factors for cardiovascular disease, or the effectiveness of future attempts at weight loss.<sup>4</sup> Another systematic review found no evidence that dieting induces eating disorders or other psychological dysfunction in overweight or obese adults.<sup>25</sup> The task force has concluded that concerns about these possible harms do not outweigh the potential benefits of weight reduction.

**Long term weight loss**

Clinical trials with long term follow up indicate that most lost weight is regained within 5 years, which has contributed to the perception that long term reduction in body weight is difficult, if not impossible, to achieve.<sup>15</sup> Physicians and patients must recognise and accept that obesity is a chronic condition that, just as with conditions such as hypertension, requires lifelong treatment.<sup>9</sup> Limited evidence suggests that continued professional contact and strategies such as self help groups can help to sustain weight loss over time.<sup>6, 20</sup>

The United States based National Weight Control Registry studies strategies used by people who have successfully maintained their weight loss (maintenance of at least a 30 lb (13.5 kg) intentional weight loss for over a year).<sup>26</sup> Over 3000 people are registered, with an average reported weight loss of 30 kg sustained over an

**Box 2: Specific recommendations for counselling and supporting obese and overweight patients**

- Educate patients about the hazards of obesity and the overall health benefits of modest weight loss (5-10% of body weight)
- Assess readiness to change with the following questions<sup>27</sup>:  
Are you currently involved in any effort to lose weight?  
(If not currently involved in any effort to lose weight) Are you considering trying to lose weight?  
Have you made any attempts to lose weight? If so, what happened?
- For patients who are ready to change, help patients set realistic goals for change in behaviour
- Emphasise gradual change in behaviour over time
- Encourage patients to give up the short term "diet mentality" and stress the need for long term lifestyle change
- Recommend increased physical activity, both planned exercise (for example, walking 30 minutes three times a week) and incorporating activity into daily routine (for example, using stairs instead of lifts or escalators)
- Recommend some level of caloric restriction
- Provide self help materials or referrals
- Help patients overcome barriers (see box B on bmj.com)
- Acknowledge the difficulty of losing weight, given the easy availability and widespread marketing of large amounts of high fat, high caloric food, but emphasise that behavioural change is possible
- Praise success in changing behaviour as well as in losing weight
- Be aware of professional cynicism and prejudice against obese individuals that might compromise support for patients and disrupt their efforts at changing their lifestyle



**Box 3: Chronic care model for management of overweight and obese adults (adapted from Glasgow et al<sup>30</sup>)****Clinical information systems**

- Automated screening reminders and tracking systems for weight, body mass index, waist circumference
- Population based registry of overweight and obese patients
- Computer generated patient calls and provider reports

**Delivery system design**

- Weight management team (with nutrition, exercise, behaviour change, pharmacy, and surgical expertise)
- Planned, proactive follow up

**Decision support**

- Clinical practice guideline
- Online tools available through internet
- Provider or team training and feedback

**Self management support**

- Printed and web based self help materials
- Individual or group education or skills training
- Maintenance support

**Community resources and partnerships**

- Referral for additional resources (for example, self help and support groups)
- Liaisons with community based programmes (for example, work, school, church)
- Organisational leadership in the community for action or policy development

average of 5.5 years. Most participants (90%) report previous unsuccessful attempts at weight loss.

Common strategies used by the participants to maintain their weight loss include eating a diet low in fat and high in carbohydrates, frequent self monitoring, and regular physical activity.<sup>26</sup> On average, participants report expending 2500-3300 kcal a week, which is comparable to about 1 hour of moderate intensity physical activity a day. This level of energy expenditure is higher than the amount typically recommended for the general public.<sup>26</sup>

**Counselling and support in primary care**

Healthcare providers should help their patients by providing sound advice about eating a healthy diet and increasing physical activity (box 2). Evaluation of readiness to change behaviour and stage specific techniques to enhance patient motivation may also be useful.<sup>3 15 27</sup> Ideally an interdisciplinary team including nutritionists, kinesiotherapists, and psychologists would be available to assist the patient.

Obese patients may avoid or delay medical care because of embarrassment or fear of disparagement.<sup>10</sup> Simple measures such as weighing patients in a private area and providing large sized examination gowns and armless chairs can help.<sup>10</sup> Although professionals should provide clear, unambiguous messages about the health risks of obesity, they should avoid "victim blaming" and approach concerns about weight control in a manner that does not demoralise patients.<sup>3</sup> Unrealistic goals of attaining "ideal" body weight are to be avoided. Gradual, modest weight loss is more realistic and can provide major health benefits, including improved glycaemic

control, blood pressure, and other cardiovascular risk factors, as well as more general effects, such as increased energy, improved sleep, and enhanced mobility.

Involvement of the family may be helpful in reducing the progression of obesity in children, but the impact of this approach on adults is not clear.<sup>20 28</sup> Obese adults report that familial resistance to changes in lifestyle can be a barrier to weight loss. Professionals should assist in solving the problem of barriers that can disrupt even the most motivated patient. Strategies for overcoming some of these are listed on bmj.com.

**Further interventions to improve management of overweight and obese adults**

Although there is insufficient evidence on the effectiveness of strategies to improve practices for the manage-

**Box 4: Population strategies to prevent obesity and promote lifestyle change****National government**

- Setting of national priorities
- Tax on foods with low nutritional value (for example, soft drinks, confectionery, and snack foods)
- Subsidies for "healthy" foods
- Funding of research to prevent or treat obesity

**Healthcare financing**

- Reimbursement for interventions for health promotion and change in lifestyle

**Mass media and entertainment industry**

- Promotion of healthy lifestyles and realistic body images
- Dissemination of health information

**Food industry**

- Labelling on packaged food to identify ingredients and nutrient content
- Inclusion of healthy food choices on restaurant menus
- Restrictions on advertisements for low nutritional value foods that target children

**Health professions**

- Guideline development for best practice
- Identification of high risk groups and individuals

**Local government**

- Support for safe and convenient venues for physical activity, such as walking paths and bicycle lanes

**Community organisations**

- Sponsorship of local public education campaigns and events to promote physical activity (for example, walking groups)
- Organisation of grass roots lobbying efforts

**Workplace**

- Wellness programmes

**Schools**

- Requirements for daily physical education
- Banning of soft drink and snack machines
- Topics on promoting health in the curriculum
- Family involvement

### Additional educational resources

National Audit Office ([www.nao.gov.uk/publications/nao\\_reports/00-01/0001220.pdf](http://www.nao.gov.uk/publications/nao_reports/00-01/0001220.pdf))

Provides a comprehensive survey of management practices for obesity in the NHS, as well as a review of government policies and local initiatives to prevent obesity

Aim for a healthy weight ([www.nhlbi.nih.gov/health/public/heart/obesity/lose\\_wt/index.htm](http://www.nhlbi.nih.gov/health/public/heart/obesity/lose_wt/index.htm))

Contains an interactive guideline tool that can be downloaded to a personal digital assistant with Palm Operating System to allow individualised and evidence based assessment and treatment recommendations for each patient at the point of care

### Reviews in progress and ongoing research

US Preventive Services Task Force ([www.ahcpr.gov/clinic/uspstfix.htm](http://www.ahcpr.gov/clinic/uspstfix.htm))

Topics on obesity, counselling for a healthy diet, and counselling to promote physical activity

A Cochrane review ([www.cochrane.no/titles/scripts/show\\_title.cfm?TitleID=2913](http://www.cochrane.no/titles/scripts/show_title.cfm?TitleID=2913))

Review of the effect of weight reduction on mortality  
Evidence based guidelines on obesity prevention and control

Systematic review of public health approaches to prevent and control obesity. US Centers for Disease Control and Prevention (CDC Special Interest Project N0 8, 2001). Anticipated release autumn, 2002

National Weight Control Registry (NWCR; [www.uchsc.edu/nutrition/nwcr.htm](http://www.uchsc.edu/nutrition/nwcr.htm))

Individuals must have maintained at least a 30 lb (13.5 kg) weight loss for at least 1 year to be eligible.

Non-US citizens can join

WHO Global Database on Obesity and Body Mass Index (BMI) Adults (available in autumn, 2002 at [www.who.int/nut/index.htm](http://www.who.int/nut/index.htm))

Online database of survey information on obesity and body mass index in adults

### Information for patients (see advice for patients on [bmj.com](http://bmj.com))

Weight-control Information Network ([www.niddk.nih.gov/health/nutrit/win.htm](http://www.niddk.nih.gov/health/nutrit/win.htm))

Science based information on obesity, weight control, and nutrition. The site includes publications (including factsheets and brochures), a quarterly newsletter for health professionals, information on ordering audiovisual and educational materials, and a listing of weight loss and control organisations and resources

ment of obesity, it is possible to extrapolate from an evidence based model for the management of chronic illness, the chronic care model (box 3).<sup>29 30</sup>

Ultimately control of obesity is likely to require population based strategies to promote healthy eating and increased physical activity.<sup>3</sup> The most effective population based interventions are likely to adopt an integrated, multidisciplinary, and comprehensive approach and involve a complementary range of actions that work at the individual, community, environmental, and policy level (box 4).<sup>31</sup> Comprehensive plans to fight obesity and to enhance healthier lifestyles have recently been developed by the United Kingdom and the European Union.<sup>2</sup> If successful, these programmes may provide the best help for current and future patients.

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